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09/733,156	12/08/2000	Frank Kelly	PD-200070	2112

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EXAMINER

WONG, BLANCHE

ART UNIT	PAPER NUMBER
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2667

2

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding. _

Office Action Summary

Application No.

09/733,156

Applicant(s)

KELLY ET AL.

Examiner

Blanche Wong

Art Unit

2667

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 08 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 33-37 is/are allowed.
- 6) ☒ Claim(s) 10,12-14,16-24,26-29,31,32 and 38-42 is/are rejected.
- 7) ☒ Claim(s) 11,15,25,30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "220" and "230" have both been used to designate transceiver. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Fig. 4 and 5 do not include NOC 210 as disclosed on p.14, ln. 17 and p. 15, ln. 10 respectively; Fig. 5 does not include remote user 150 as disclosed on p. 15, ln. 12 and 13; Fig. 5 does not include NOC 210, RCVR 140, remote users 150, satellite 130, transceiver 230 as disclosed throughout p. 17; Fig. 6 does not include NOC delay receiver 551, echo timing receiver 552, NOC FPG 520, BCD 530, DVB transport stream, RCVR 140, TU 450 as disclosed throughout p. 18-21. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 260, on p. 12, ln. 20; 230, on p. 14, ln. 8-13;. A proposed drawing

correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 12,20 and 28** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is "a satellite drift".

6. **Claims 23 and 24** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is "inroute".

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 17-19, 21-22** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Dutta (U.S. Pat No. 5,982,761).

With regard to claim 17, Dutta discloses a method for providing communication timing information from a control station 140 (LES or Land Earth Station), comprising:

generating a timing marker (slot markers, col. 14, ln. 28-31);

determining a control station timing delay (slot markers indicate with respect to prior and subsequent time slots and thus delay can be determined with respect to prior and subsequent time slots, col. 14, ln. 28-42; see also message transport delays, col. 11, ln. 58-col. 12, ln. 3); and

providing the timing marker and the control station timing delay in a message (network management data, col. 14, ln. 11-15) received by a remote user.

With regard to claim 18, Dutta also discloses a timing marker (slot markers, col. 14, ln. 28-31) that is a superframe marker (superframe begins with the time-critical information of the R-type network control data and slot marker is an R-type network control data, col. 15, ln. 66-67).

With regard to claim 19, Dutta also discloses a superframe marker that is provided to a timing section (superframe begins with the time-critical information of the R-type network control data of the RCDP and RCDP is the return channel descriptor packet that is part of the message frame, col. 15, ln. 55 and ln. 66-67) of the control station (message data are primarily user-generated and user-generated messages flow in both directions, col. 13, ln. 54-60).

With regard to claim 21, Dutta also discloses a control station timing delay (slot markers indicate with respect to prior and subsequent time slots and thus delay can be determined with respect to prior and subsequent time slots, col. 14, ln. 28-42; see also message transport delays, col. 11, ln. 58-col. 12, ln. 3) corresponds to a previous timing marker provided in a prior message to the remote user.

With regard to claim 22, Dutta also discloses a superframe marker (col. 15, ln. 62-64) that is periodically (col. 16, ln. 37-39) provided in messages to the remote user at a first fixed interval.

9. **Claims 10,14,16,27-29,31-32** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Malcolm et al. (U.S. Pat No. 5,790,939).

With regard to claim 27, Malcolm discloses a method for transmitting a frame synchronized (TDMA) message, comprising:

receiving a frame reference marker (transmitted frame timing, col. 2, ln. 14; see also reference frame timing, col. 2, ln. 46) in a local receiver 22 (mobile terminals, col. 2, ln. 16) of one of a plurality of distributed user nodes (a plurality of mobile terminals, col. 2, ln. 43-44);

timestamping (a mobile terminal having a timer, col. 2, ln. 17) the received frame reference marker (transmitted frame timing, col. 2, ln. 14) with a local reception time;

receiving a control node timing differential (frame timing offset information, col. 2, ln. 17-18) at the local receiver;

correcting (col. 2, ln. 19-20 and ln. 52-53) the local reception time by applying the control node time differential (frame timing offset information, col. 2, ln. 17-18) and a local offset time (a mobile terminal having a timer, col. 2, ln. 17);

determining (col. 2, ln. 33-34 and ln. 49) a start time for a return channel frame using the corrected local reception time; and

transmitting (col. 2, ln. 34-35) a first message (col. 2, ln. 58-61) from one of the plurality of distributed user nodes during an assigned period within the return channel frame.

With regard to claim 28, Malcolm also discloses where correcting the local reception time includes applying a satellite drift correction (reduction in burst time drift measurements, col. 3, ln. 5).

With regard to claim 29, Malcolm also discloses a control node timing differential is received after the received frame reference marker is timestamped with the local reception time. Col. 2, ln. 30-41.

With regard to claim 31, Malcolm also discloses centrally receiving 26 (gateway) a plural of different user messages (mobile terminals), wherein each of the plurality of different user messages is transmitted within the return channel frame in accordance with a time-slot allocation scheme (L-band-to-L-band TDMA bent pipe single-hop communication, col. 4, ln. 17-29).

With regard to claim 32, Malcolm also discloses transmitting a second message 240 (secondary gateway whereas 26 is the primary gateway, col. 3, ln. 58-61) from a different one of the plurality of distributed user nodes during a different assigned period within the return channel frame in accordance with a time-slot allocation scheme (L-band-to-L-band TDMA bent pipe single-hop communication, col. 4, ln. 17-29), wherein the different one of the plurality of distributed user nodes uses the frame reference marker to determine the different assigned period.

With regard to claim 10, Malcolm also discloses a transceiver (gateways, 26, 240) for transmitting a frame synchronized message, comprising:

- a receiver (L-band-to-L-band TDMA bent pipe single-hop communication, col. 4, ln. 17-29) which detects a frame reference marker (transmitted frame timing, col. 2, ln. 14) and a control node timing message (frame timing offset information, col. 2, ln. 17-18) in a received broadcast signal;

- a local clock (a mobile terminal having a timer, col. 2, ln. 17) adapted to tag the detected frame reference marker (transmitted frame timing, col. 2, ln. 14) with a local reception time;

- a timing recovery section (adjusting, col. 2, ln. 19-20 and ln. 52-53) which uses the control node timing message (frame timing offset information, col. 2, ln. 17-18) to determine (deriving and calculating, col. 2, ln. 33-34 and ln. 49) a transmit frame start time; and

a transmitter (L-band-to-L-band TDMA bent pipe single-hop communication, col. 4, ln. 17-29) adapted to uplink a message during an assigned period after the transmit start time.

With regard to claim 14, Malcolm also discloses a timing recover section is adapted to correct for a space timing offset. Col. 2, ln. 11-20.

With regard to claim 16, Malcolm also discloses a transmitter is adapted and controlled to transmit within a TDMA frame in accordance with a time-slot allocation scheme. (L-band-to-L-band TDMA bent pipe single-hop communication, col. 4, ln. 17-29)

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Malcolm in view of Dutta 5,982,761.

With regard to claim 13, Malcolm discloses the transceiver of claim 10. However, Malcolm fails to explicitly show a control node timing message provides timing information for a previously transmitted frame reference marker, as recited in claim 13.

In an analogous art, Dutta discloses a control node timing message provides timing information for a previously transmitted frame reference marker (slot markers indicate with respect to prior and subsequent time slots and thus delay can be determined with respect to prior and subsequent time slots, col. 14, ln. 28-42; see also message transport delays, col. 11, ln. 58-col. 12, ln. 3), as recited in claim 13.

A person of ordinary skill in the art would have been motivated to employ Dutta in Malcolm in order to obtain time-critical network management. The suggestion/motivation to do so would have been to lower message transport delays, to increase an effective information rate, to optimize return channel capacity, and to adapt the capacity of a fixed number of lease transmission channels. Dutta, col. 4, ln. 6-21. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Dutta and Malcolm to obtain the invention as specified in claim 13.

12. **Claim 26** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dutta 5,982,761 in view of Wolff et al. (U.S. Pat No. 6,366,970).

With regard to claim 26, Dutta discloses the method of claim 17. However, Dutta fails to expressly show a message to the remote user is broadcast on an asynchronous DVB transport stream, as recited in claim 26.

In an analogous art, Wolff discloses a message to the remote user is broadcast on an asynchronous DVB transport stream (col. 4, ln. 55-64), as recited in claim 26.

Specifically, a satellite and terrestrial broadcast transport stream which is an DVB transport stream.

A person of ordinary skill in the art would have been motivated to employ Wolff in Dutta in order to obtain an asynchronous DVB transport stream. The suggestion/motivation to do so would have been to provide a transfer of information in the form of streaming (real-time) data in streaming (real-time) application such as digital satellite broadcast. Wolff, col. 1, ln. 11-19. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Wolff and Dutta to obtain the invention as specified in claim 26.

13. **Claim 38-39,41-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dutta 5,982,761 in view of Malcolm.

With regard to claim 38, Dutta discloses a method for sharing a set of TDMA channels between of uplink channels Fig, 7, comprising:

providing a non-real time system reference timing message (N-type network control data, col. 14, ln. 11-15) to a remote user 120 (mobile terminals); and

calculating a message transport delay (message transport delays, col. 11, ln. 58- col. 12, ln. 3; see also slot markers indicate with respect to prior and subsequent time slots and thus delay can be determined with respect to prior and subsequent time slots, col. 14, ln. 28-42).

However, Dutta fails to expressly show
offsetting a local timing reference from the non-real time system timing by the
message transport delay;

determining a realtime TDMA transmit frame timing from the offset local time
reference; and

transmitting uplink channel information in accordance with the real time TDMA
transmit frame timing and a TDMA time-sharing arrangement, as recited in claim 38.

In analogous art, Malcolm discloses

offsetting (col. 2, ln. 19-20 and ln. 52-53) a local timing reference from the non-
real time system timing by the message transport delay;

determining (col. 2, ln. 33-34 and ln. 49) a realtime TDMA transmit frame timing
from the offset local time reference; and

transmitting (L-band-to-L-band TDMA bent pipe single-hop communication, col.
4, ln. 17-29) uplink channel information in accordance with the realitme TDMA transmit
frame timing and a TDMA time-sharing arrangement, as recited in claim 38.

A person of ordinary skill in the art would have been motivated to employ
Malcolm in Dutta in order to synchronize local and system time. The
suggestion/motivation to do so would have been to provide TDMA operation in
conjunction with the time-slot interchange switch onboard the satellite spacecraft which
imposes the system requirement that all traffic routed through the onboard switch be

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frame and time-slot synchronous with the switch. Malcolm, col. 1, ln. 30-34. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Malcolm and Dutta to obtain the invention as specified in claim 38.

With regard to claim 39, Dutta also discloses receiving a frame marker message (slot markers, col. 14, ln. 28-31) encapsulated in a layered transport (it is inherent where there are packets, there is layer transport; Fig. 7; see also channel groups 161, 171 and packet type and length 511,512 in col. 18, ln. 15-52) stream.

With regard to claim 41, Dutta also disclose a non-real time system timing message (N-type network control data, col. 14, ln. 11-15) that is provided to a plurality of remote users (mobile terminals).

With regard to claim 42, Malcolm also discloses a plurality of remote users over more than one layered transport stream. (primary and secondary gateways, col. 3, ln. 58-60)

14. **Claim 40** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dutta 5,982,761 and Malcolm as applied to claims 38-39 and 41-42 above, and further in view of Wolff.

With regard to claim 40, the combination of Dutta and Malcolm discloses the method of claim 39. However, the combination fails to explicitly show a layered transport stream that is an asynchronous DVB transport stream, as recited in claim 40.

In an analogous art, Wolff discloses a layered transport stream (col. 4, ln. 55-64) that is an asynchronous DVB transport stream, as recited in claim 40. Specifically, a satellite and terrestrial broadcast transport stream which is an DVB transport stream.

A person of ordinary skill in the art would have been motivated to employ Wolff in the combination of Dutta and Malcolm in order to obtain an input of an asynchronous DVB transport stream. The suggestion/motivation to do so would have been to provide a transfer of information in the form of streaming (real-time) data in streaming (real-time) application such as digital satellite broadcast. Wolff, col. 1, ln. 11-19. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Dutta and Malcolm and Wolff to obtain the invention as specified in claim 40.

Allowable Subject Matter

15. **Claims 1-9 and 33-37** are allowed.

With regard to claims 1-9, the prior art of record fails to show or suggest a control station for two-way satellite communication, comprising all together: an RF section; a plurality of burst channel demodulators; a timing section including a delay receiver, an echo timing receiver, and a timing processor; a frame pulse generator coupled to the plurality of burst channel demodulators and the timing section,

wherein the frame pulse generator pulses the plurality of burst channel demodulators at a second fixed time interval different from the first fixed time interval and at a time later than a time of the superframe marker pulse by a space timing offset interval, as recited in claim 1.

With regard to claims 33-37, the prior art of record fails to show or suggest a communication system for sharing return channel uplink timing information, comprising all together: a common symbol timing reference, a first control station transmitting a first broadcast data stream in accordance with the common symbol timing reference,

said first control station including a first delay tracker to determine a first transmission delay associated with the first control station; and

a first timing recovery circuit to determine an upcoming real-time return channel frame start time by adjusting the first local time of receipt by the first transmission delay and a first receiver offset time; and a first local transmitter to uplink a message in a predetermined time-slot after the real-time return channel frame start time, as recited in claim 33.

16. **Claim 25** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

17. **Claim 11,15,30** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dutta (U.S. Pat No. 5,898,681) discloses methods of load balancing and controlling congestion that make use of login assignments of mobile terminals. Col. 2, ln. 16-17, ln. 62-65; Col. 3, ln. 1-4, ln. 56-59.

Dutta (U.S. Pat No. 6,463,040) is an improvement over Dutta (U.S. Pat No. 5,982,761) by removing network management information which is not time critical.

Barrow (U.S. Pat No. 5,809,091) discloses a timing generator that synchronizes a mobile station internal timing with a base station in a TDMA cellular communication system. Fig.1 and 2.

Takahashi et al. (U.S. Pat No. 5,912,886) discloses a synchronization timing control center 30 where a formal frame signal to be used by each radio base station is reproduced by compensating the received frame signal by the transmission delay value.

Zhao et al. (U.S. Pat No. 6,452,541) discloses time synchronization of satellite positioning system enabled mobile receiver and cellular communication network base station. It includes variable propagation delay 232, handset clock 318, drifts 310,330.

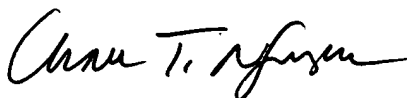
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 703-305-8963. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H Pham can be reached on 703-305-4378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BW

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May 13, 2004



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